

REMARKS

Claims 1-29 remain in the application. The Applicant has added claims 30-47. What distinguishes claims 30-47 from the prior art is that the limitations they recite, in combination with the limitations recited in the claims from which they depend, are neither shown nor disclosed in the prior art of record.

The Office Action objects to the drawings under 37 CFR 1.83(a) because the claimed mandrel is ostensibly not shown. In response, the Applicant maintains that a mandrel is shown in Figure 2. When, as illustrated in Figure 2, optional mandrel cap 8 is provided, it and the rod 6 provide a mandrel, with the cap 8 supporting the outer end of the carton C internally. To clarify this, the applicant has amended numbered paragraph 0041 on page 13 of the Specification to indicate that the rod 6 and the cap 8 provide a mandrel when the outer end of the elongate support member (rod 6) has a mandrel cap 8 fixed thereto.

The Office Action additionally objects to the drawings under 37 CFR 1.84(p)(4) because reference numeral 2 designates a radiation device in Figure 1 while, in Figure 2, appearing to designate the apparatus as a whole. In response, the Applicant has amended the lead line extending from reference numeral 2 in Figure 2 to more clearly designate the radiation device as shown in the enclosed replacement Figure 2 accompanying this Response.

As amended, the drawings are now in acceptable form.

The Office Action rejects claims 15 and 26 under 35 U.S.C. § 112 ¶ 2 as being indefinite. The Office Action indicates that it's not clear what the Applicant is trying to claim in a particular phrase used in each of these claims. In response, the Applicant has amended claims 15 and 26 to clarify their respective meanings.

The Office Action rejects claims 1, 13, and 20 under 35 U.S.C. § 103(a) as being unpatentable over Koderia in view of Tuckner et al. According to the Office Action Koderia teaches a method and a device for sterilizing partially completed containers open at both ends by simultaneously applying hydrogen peroxide and UV radiation, and that it would have been obvious to modify the Koderia method and device to include a movable device for extending into and retracting from partially completed containers as taught by Tuckner et al "in order to sterilize the interior of the cartons."

As regards Koderia, the Applicant maintains that this document does not teach a method and a device for sterilizing partially completed containers open at both ends by simultaneously applying hydrogen peroxide and UV radiation, as claimed. Koderia's closest clear disclosure to claims 1, 13 and 20 is in relation to Figure 8, where, from line 6 of column 13 onwards Koderia discloses that a strip P of food packaging film can be sterilized by being simultaneously processed with both the sterilizing liquid and

ultraviolet radiation, with the strip P being dipped in the liquid as it advances through a sterilizing vessel 14a, while it is subjected to ultraviolet radiation emitted by lamps 20a.

Kodera's disclosure regarding "partially completed containers" is vague, confused, absolutely minimal, and fails to reach the level of an enabling disclosure. Accordingly, the Applicant maintains that this disclosure does not qualify Kodera as a reference. *Akzo N.V. v. U.S. I.T.C.*, 1 U.S.P.Q. 293, 298 (Fed. Cir. 1985). Kodera discloses at line 6 onwards of column 1 that its invention relates to a method of "sterilizing food packaging materials, food packages, or comparable objects by dual agents". A skilled person would class the strip P of Figure 8 as a "food packaging material" rather than a "food package". At lines 53 and 54 of column 1 there is corresponding mention of "the sterilization of food packaging materials, food packages or like objects". However, at line 57 onwards of column 1 it is stated that the invention makes "combined use of two complementary agents for the sterilization of food packages, among other objects (so that food packaging materials seem no longer to be referred to). The column goes on to state, at lines 61 to 62, that "The packages to be treated may be in either blank, semifinished or finished form". This seems to be the only point in the whole of Kodera where it could be said that "partially completed containers" are referred to. However, there is absolutely no disclosure as to the actual form that such a semifinished package could take (in particular, there is absolutely no disclosure that the "semifinished" packages of column 1, lines 61 to 62, referred to in the Office Action would be "open at both ends"), nor the manner in which it could be subjected to sterilization, in particular whether it would be subjected to simultaneous processing with both the sterilizing liquid and the ultraviolet radiation as taught for the strip P in Figure 8, or subjected to ultraviolet radiation after being subjected to a sterilizing liquid, as taught for the strip P in Figure 5. Moreover, there is absolutely no disclosure as to the apparatus which would be used in sterilizing the semifinished packages.

Tuckner et al., as the Office Action indicates, is in the art of sterilizing partially completed cartons, teaches the concept of extending a spraying nozzle inside a carton, and teaches a drive arrangement to cause the nozzle to extend into and retract from the carton, thereby producing relative motion between the nozzle and the partially completed container. Although not mentioned in the Office Action, Tuckner et al. does disclose, at line 52 onwards of column 10 that "it is not absolutely necessary to employ a drying station 30... after the sterilizing and score line breaking station 28. In place of the drying station, however, it has been found useful to subject the cartons to ultraviolet light irradiation. The ultraviolet light irradiation interacts with the hydrogen peroxide solution to provide synergistic sterilizing results". Thus, Tuckner et al. appears to teach that, after the station 28 where hydrogen peroxide is applied, there is a station where the ultraviolet light is applied to the interiors of the cartons. This system is, in principle, more like that of Figure 5 of Kodera, where ultraviolet radiation is applied after sterilizing liquid, than that of Figure 8 of Kodera, where the radiation and liquid are applied simultaneously. Thus, a person of ordinary skill in the art considering applying the teachings of Tuckner et al. to Kodera would automatically consider applying them to the Figure 5 version of

Kodera. Nevertheless, the Office Action does not explain what changes to the method and apparatus of Figure 8 of Kodera an ordinarily skilled person would have found it obvious to make to adapt them to the method and apparatus of Tuckner et al.

Claim 1: As explained above, a person of ordinary skill in the art, who was considering applying Tuckner et al. to Kodera, would have been led away from applying radiation and sterilizing substance simultaneously, as required by claim 1. Furthermore, claim 1 requires that the device that extends in the partially completed container should emit radiation from it and there is no disclosure in Tuckner et al. (nor, obviously, in Kodera) of such radiation-emitting device extending in the partially completed container.

Claim 13: As explained above, a person of ordinary skill in the art, who was considering applying Tuckner et al. to Kodera, would not provide a device that emits both radiation and a dispersion and that is caused to extend in a partially completed container, as required by this claim.

Claim 20: The Applicant notes that this claim requires that the partially completed container be "open at opposite ends." Yet Kodera doesn't disclose any form taken by its semifinished packages, and in Tuckner et al., the clear teaching is that the container 10 being sterilized should be open only at its top end. Moreover, in Kodera there is no disclosure of any device being located in a partially completed container, while in Tuckner et al. there is no disclosure that the device 32 should be advanced while a dispersion is produced therefrom, as also required by claim 20.

For these reasons the Applicant maintains that claims 1, 13, and 20 are patentable over Kodera in view of Tuckner et al.

The Office Action rejects claims 2-4, 6-8, 11-12, 14, 16, 18, and 21 under 35 U.S.C. § 103(a) as being unpatentable over Kodera in view of Tuckner et al. and further in view of Swain et al.

In response, the Applicant notes that the Swain et al. document discloses, at line 17 onwards of column 5, that a cleaning apparatus 158 cleans substrates 14 prior to subsequent processing of the substrates. It explains that the load head 154 and/or the carriage 152 is lowered until the substrate 14 is positioned within the mouth of the cleaning apparatus 158 in an alignment to be received by a mandrel in the apparatus 158. Then, pickup heads 156 release the substrate 14 and the substrate is then received by the mandrel. Within the apparatus 158, the substrates 14 are cleaned by any suitable technique, such as the use of liquid detergents, carbon dioxide, freon, or ozone with or without simultaneous exposure to ultraviolet light. It is then explained that, in one system, the mandrel with the substrate thereon moves the substrate 14 past a nozzle in the cleaning apparatus 158, with the substrate being both rotated (presumably about its own axis) and moved axially by the mandrel. It is explained that the substrate need not be

moved, provided that the spray from the nozzle can be applied to the external surface of the sleeve-form substrate.

Swain et al. state, at line 10 onwards of column 6, that the mandrel continually moves the substrate upward and downward past the spray of the nozzle, although, preferably, the substrate 14 encounters the spray of the nozzle only during the upward movement of the substrate. Swain et al. explain that the vertical movement of the substrate 14 can be accomplished in a variety of ways, including driving the mandrel vertically. Although the reference states that the positioning of the mandrel and the stroke thereof assure that the entire substrate 14 is impacted by the spray of a cleaning compound, i.e., carbon dioxide, and is cleaned thereby, there's no explanation as to how this is achieved - unless the disclosure is seriously misleading and it's only the external surface of the substrate and not the entire substrate that the spray impacts.

It would seem, particularly from Figure 2 of Swain et al. that each substrate 14 being lowered towards the cleaning apparatus 158 has its axis vertically oriented and that therefore the unillustrated mandrel that receives that substrate also has its axis vertically oriented and that therefore the vertical movement of the mandrel during spraying of the substrate moves both the mandrel and the substrate axially.

Swain et al. explain at line 32 onwards of column 6 that, to remove the substrate from the mandrel following the cleaning thereof, the mandrel lifts the substrate into position to be received by a load head 160, whereafter the mandrel is lowered ready to receive the next substrate 14 to be cleaned. Unfortunately, again the Office Action simply asserts that it would have been obvious to the skilled person to modify the method and apparatus of Koderä by including a carton (sic) displacement means as taught by Swain et al., without any explanation as to why and how the skilled person would find it obvious to change the method and apparatus of Figure 8 of Koderä to adapt it to the totally different apparatus of Swain et al. Moreover, although the Office Action asserts that the teaching of the Swain et al. reference is such that, if its method and apparatus were to be applied to Koderä, the "entire carton" would be treated, the Action doesn't explain how such treatment of the entire carton would be feasible with an apparatus incorporating the Swain et al. mandrel and spray nozzle arrangement.

Claim 2: The Applicant maintains that this claim is patentable because it depends from claim 1. Furthermore, Swain et al. neither discloses nor suggests displacing the substrate 14 (let alone a partially completed container) over a device emitting cleaning medium, as claimed.

Claim 3: The Applicant maintains that this claim is patentable because it depends from claim 1. Moreover, during spraying onto the substrate 14, it and its mandrel are moved simultaneously in a direction along the axis of the sleeve-form substrate 14, instead of in the direction "transverse to" (the sleeve-form substrate 14) as required by claim 3.

Claim 7: The Applicant maintains that this claim is patentable because it depends from claim 1. Moreover, in none of Kodera, Tuckner et al. and Swain et al. is there any disclosure of a “partially completed container... open at opposite ends”, nor “advance (of a radiation-emitting) said device in the interior of said partially completed container while said emitting (is) being performed” as required by claim 7.

Claim 8: The Applicant maintains that this claim is patentable because it depends from claim 1 via claim 7. Moreover, there is no disclosure in Tuckner et al. that the relative movement between the spraying assembly 31 and the open-topped carton 10, nor in Swain et al. that the relative movement between the substrate 14 and the unillustrated cleaning spray nozzle in Swain et al., should be “at substantially constant speed” as required by claim 8. There is, of course, no relevant disclosure in Kodera.

Claim 14: The Applicant maintains that this claim is patentable by virtue of its appendancy to claim 13, and for the same reasons set forth above with regard to claim 2.

Claim 16: The Applicant maintains that this claim is patentable because it depends from claim 13, and for the same reasons set forth above with regard to claim 3.

Claim 21: The Applicant maintains that claim 21 claim is patentable because it depends from claim 20, and for the same reasons set forth above with regard to claim 8.

Claim 4: The Applicant maintains that claim 4 is patentable because it depends from claim 1. Moreover, aside from the fact that Kodera does not disclose irradiating the interior surface of a partially completed container, the distance between the lamps 20a and the facing surface of the strip P in Figure 8 is hardly “very short”, especially since, as disclosed at lines 23 to 26 of column 13 of Kodera, the lamps 20a irradiate the surface of the strip P “through the quartz window panes 172 and the liquid in the sterilizing vessel”.

Claim 6: The Applicant maintains that claim 6 is patentable because it depends from claim 1.

Claim 11: The Applicant maintains that claim 11 is patentable because it depends from claim 1. Moreover, although all of Kodera, Tuckner et al. and Swain et al. disclose the use of radiation, none of them discloses that it should be emitted substantially perpendicularly to a common longitudinal axis of a partially completed container and of the radiation-emitting device, or that it should be emitted substantially throughout 360° around this axis, as required by claim 11. In Kodera et al., the radiation is emitted substantially perpendicularly to the axis of the strip P, but that axis does not appear to be common to both the strip and the ultraviolet lamp or lamps 20a. Moreover,

the lamps 20a do not emit radiation substantially throughout 360° around such axis. In Tuckner et al. it is simply stated that, in place of the drying station 30, the cartons are subjected to ultraviolet irradiation. Again, in Swain et al. there is merely the vague reference to ultraviolet light at lines 35 and 36 of column 5.

Claim 17: The Applicant maintains that claim 17 is patentable because it depends from claim 13. Moreover, Koderá certainly does not teach any of the items stated by the Examiner, except for the applying of UV light; there is no disclosure that “partially completed containers” have “a common longitudinal axis” (the Applicant is claiming a common longitudinal axis of the partially completed container and the emitting device), nor is there any disclosure of subsequent folding of partially completed containers.

Claim 12: The Applicant maintains that claim 12 is patentable because it depends from claim 1 via claim 11. Furthermore, although the Office Action asserts that Tuckner et al. teaches “emitting a substance from an outer end of the device substantially perpendicular (sic) to the axis and throughout 360 degrees around the axis (Figure 2, 28)”, from the spraying heads shown in Figure 2, the emission of the substance appears to be shown by the obliquely downwardly inclined chain lines extending to the cartons 10 and these are clearly not “substantially perpendicular to the axis”, nor is there any disclosure that they are “throughout 360 degrees around the axis”, as required by claim 12.

Claim 18: The Applicant maintains that claim 18 is patentable because it depends from claim 13 via claim 17 as well as for the reasons set forth above with regard to claim 12.

For these reasons, the Applicant maintains that claims 2-4, 6-8, 11-12, 14, 16, 18, and 21 are patentable over the cited references.

The Office Action rejects claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Koderá in view of Tuckner et al. and further in view of Leshik et al. The Applicant maintains that claim 5 is allowable because it depends from claim 1.

The Office Action rejects claims 9-10, 15, 19, and 22 under 35 U.S.C. § 103(a) as being unpatentable over Koderá in view of Tuckner et al. and further in view of Swain et al. and Rodocker.

In response, the Applicant notes that Rodocker discloses, at line 32 onwards of column 2, a nebulising nozzle 12 mounted on the frame 14 of a form-fill-seal machine 16. It is explained at line 35 onwards of column 2 that the blank 40 is removed by suction cups 42 so as to cause the blank to open into a four-sided tube 44, which is deposited upon a small conveyor 46. This conveyor 46 moves the tube 44 towards and

onto one of the mandrels 28 of an indexing, rotary spider (24). The nozzle 12 is located adjacent the rear end of the tube 44 as the tube is deposited upon the conveyor 46, at which time the tube 44 moves away from the nozzle 12 after the sterilant fog has been emitted from the nozzle 12. The Office Action indicates that Rodocker teaches using a mandrel (12) for emitting a sterilant inside a partially completed container open at both ends 40 (44?) and for subsequently closing the other end of the container (station B or C or D) with mandrel caps.

The Applicant asks that the Examiner reconsider his understanding of the disclosure of Rodocker's preferred embodiment. Please note that item 12 is not a "mandrel", even by the dictionary definition of "mandrel" that the Examiner cites. The item 12 is never inserted into the tube 44 nor does it ever support it during treatment. The Applicant maintains that Rodocker neither discloses nor suggests that item 12 is capable of supporting a blank by being inserted within it. Furthermore, a careful study of the reference reveals that item 12 is never used for closing the other end of the container at any of the stations B, C and D. It is the actual mandrels 28 that are used for supporting the tubes 44 during treatment at the stations B, C and D. There is no disclosure or suggestion that they have, or might have, caps (i.e. mandrel caps) at their outer ends.

The Applicant notes that at lines 31 to 44 of column 1 Rodocker does in fact disclose a sterilization apparatus and method in which a channel is formed through the length of each mandrel of a spider, with the channel receiving a sterilizing fog from the hub of the spider, thereby conveying the fog to the interior of the container as the latter is being stripped from the mandrel. However, in that sterilization apparatus and method, the supply of sterilant fog to the interior of the container is performed after, and not before, the bottom end of the container is closed and, furthermore, the mandrel emits a sterilant fog and not radiation.

Claim 9: This claim is patentable because it depends from claim 1 via claim 7. Furthermore, claim 9 requires that a mandrel containing the radiation-emitting device be caused to extend in the partially completed container from one of the open opposite ends thereof and that, after the emitting of the radiation, the other end of the partially completed container should be closed while the partially completed container remains on the mandrel. There is no such combination of features either disclosed or suggested in any of the four references in question.

Claim 10: This claim is patentable because it depends from claim 1 via claim 7.

Claim 15 (as now amended): This claim is patentable because it depends from claim 13. In addition, of Kodera, Tuckner et al., Swain et al. and Rodocker, only Swain et al. and Rodocker disclose the use of mandrels. Of these, Swain et al. clearly does not disclose a container-end closing arrangement as required by claim 15 nor that its mandrel should emit both radiation and a dispersion; while only Rodocker discloses that

the mandrel emits anything, though what's emitted is a chlorine dioxide or hydrogen peroxide fog, rather than both radiation and dispersion. Moreover, Rodocker discloses the applying of the fog as occurring after the closing arrangement has closed the bottom end of the partially completed container, rather than before, as claim 15 requires.

Claim 19 (as now amended): This claim is patentable because it depends from claim 13 via claim 17. Moreover, even assuming that it would be obvious to use a mandrel cap at the outer end of each mandrel 28 of Rodocker, there is no disclosure that the mandrel 28 could comprise a rod-shaped source of radiation.

Claim 22: This claim is patentable because it depends from claim 20.

For these reasons, the Applicant maintains that claims 9-10, 15, 19, and 22 are patentable over the cited references.

The Office Action rejects claims 23 and 24 under 35 U.S.C. § 103(a) as being unpatentable over Castberg et al. in view of Swain et al.

In response, the Applicant notes that Castberg et al. illustrates in Figures 2 and 3 two differing systems for providing tailored energy distributions, these being described at lines 34 to 60 of column 10. In Figure 2, a UV light beam B impinges upon a computer-generated hologram H that diffracts the beam B in a well-defined pattern, the diffracted rays being indicated by the short oblique lines in the Figure. The alternative system illustrated in Figure 3 employs two galvanometers (not shown) to drive respective mirrors N that can be rotated about respective axes, thereby deviating the incident laser beam B. As explained, the combination of the two mirrors N allows the beam to be directed in two axes. These two axes are indicated by respective curved arrows extending from the vertically extending beam in Figure 3. A third galvanometer (not shown) producing a focus motion F can be used to vary the separation of two lenses of the motion F, thereby changing the divergence of the beam.

Lines 13 to 17 of column 4 explain that the beam is "a low divergence, highly directional output beam, which makes it especially suitable for the treatment of specific areas within cartons where contamination might be severe, e.g. carton corners and folds". The energy pattern produced by the hologram H is such that, in a particular position of the hologram H, which is outside the carton C, the highest energy areas would be such carton corners and folds. The use of a scanning beam B as in Figure 3 again means that the energy distribution over the interior surface of the carton C can be controlled so as to irradiate particularly those specific areas where contamination might be severe.

Although the Office Action asserts that a person of ordinary skill in the art would have found it obvious to displace the carton C over the radiation-emitting device, this would be impractical with either of the radiation-emitting devices (H or N) of



Castberg et al. As regards the hologram H, it needs to be in a specific position relative to the carton C for the energy distribution pattern to have the required effect. Furthermore, its position outside the carton C, as disclosed in Castberg et al., is particularly advantageous, since it avoids any need to insert the hologram H into the carton and thus avoids any consequential risk of contaminating the carton interior.

Similarly, with respect to the system shown in Figure 3, it is clearly preferable for the mirrors N to be located in a predetermined region relative to the carton C so that the control of the rotation of the mirrors N does not need to be made more complicated by having to take into account movement of the carton C relative to the mirrors N and the focus motion F. Furthermore, having the mirrors N outside the carton C avoids any consequential risk of contaminating the interior of the carton C.

Claim 24: The applicant maintains that claim 24 is allowable for the same reasons set forth above with regard to claim 23.

The Office Action rejects claims 25 and 26 under 35 U.S.C. § 103(a) as being unpatentable over Rodocker in view of Tuckner et al.

Claim 25: Referring to the Applicant's discussion, above, of the disclosures of Rodocker and Tuckner et al., the Applicant maintains that claim 25 is allowable because the nozzle 12 is not a mandrel and has nothing to do with closing the bottom of the container at the stations B to D. Tuckner et al. teaches that the spray head for liquid sterilant should be combined with the score line breaking assembly for pre-breaking the carton top (see line 1 onwards of the Abstract, for example). Referring to Figure 3 of Rodocker, this shows where its top pre-breaker station G (referred to at line 42 onwards of column 3) is located. Thus, if a person of ordinary skill were to apply the teaching of Tuckner et al. to Rodocker, he would locate spraying assembly 31 at the station G in Rodocker and, presumably, do away with the sterilant fog nozzle 12 of Rodocker. Thus, since the partially completed container at the station G would no longer be open at both ends, a mandrel would not be caused to extend in the partially completed container from one of its open ends, nor would, after emission of a medium from the mandrel, the other end of the partially completed container be closed while the container remains on the mandrel, all of which is required by claim 25.

As regards the prior art disclosure at lines 31 to 46 of column 1 of Rodocker, again it does not disclose, as required by claim 25, closing of the other end of the partially completed container after a mandrel extending into the partially completed container from the one end thereof has emitted the medium.

Claim 26 (as now amended): The applicant maintains that claim 26 is allowable for the same reasons set forth above with regard to claim 25.

For these reasons, the Applicant maintains that claims 25 and 26 are patentable over the cited references.

The Office Action rejects claims 27 and 28 under 35 U.S.C. § 103(a) as being unpatentable over Rodocker in view of Holbert.

In response, the Applicant notes that Hulbert, as the Examiner states, teaches a movable radiation source in the form of the ultraviolet lamp 20 in Figure 6 placed (presumably by a drive arrangement for inserting and retracting the UV lamp) within the interior of the carton 70 through its open top 72. The form-fill-seal machine partially illustrated in Figure 6 of Hulbert is presumably basically similar to that of Figure 3 of Rodocker. Thus, again, a person of ordinary skill applying the teaching of Figure 6 of Hulbert would locate the lamp 20 at a station downstream of the mandrels 28 of Rodocker and upstream of the filling station H of Rodocker. When doing that, he might or might not do away with the sterilant-fog-producing nozzle 12 of Rodocker.

Claim 27: Thus, the skilled person would not cause a mandrel to extend in the partially completed container from one of open opposite ends thereof, as required by claim 27.

Claim 28: As regards the rejection of this claim as being unpatentable over Rodocker in view of Hulbert, there is no disclosure in either of those cited references of a radiation-emitting device in a mandrel, as required by claim 28.

For these reasons, the Applicant maintains that claims 27 and 28 are patentable over the cited references.

The Office Action rejects claims 29 and 30 under 35 U.S.C. § 103(a) as being unpatentable over Tuckner et al. in view of Swain et al.

The Applicant asks that the Examiner reconsider his understanding of the disclosure in Tuckner et al. and Swain et al. and refers the Examiner to the Applicant's comments with regard to those documents, above. Specifically, the Office Action states that Tuckner et al. teaches a drive arrangement to cause the nozzles to extend into and retract from the cartons, but fails to teach moving the container in direction transverse to an axis of the container. Figure 2 of Tuckner shows the prior art but, in the Tuckner et al. preferred embodiment the spraying arrangement illustrated as prior art in Figure 2 at the sterilization station 28 (and presumably also a top pre-breaking station not illustrated) would be replaced by the combined station, much of which is illustrated in Figure 3(a). Please note that the cartons 10 in the inventively modified Figure 2 would be moved in the direction indicated by the arrow at the left-hand side of Figure 2 and thus in a direction transverse to the axis of the containers. However, there is no teaching in Tuckner et al. that the spraying assembly should be moved simultaneously with the container in that transverse direction, whereas claim 29 specifies that the medium-

emitting device and the partially completed container should advance simultaneously in such transverse direction while the device is emitting the medium.

Again, the Office Action asserts that Swain et al. “teaches moving the substrate upwards and downwards past the spray nozzle... in direction transverses (sic) to an axis of the container (sic) (substrate???)”. However, it’s clear, from Swain et al. as discussed in detail above, that the substrate 14 has its axis vertical when it’s moved upwards and downwards past the spray nozzle, so that its movement is along that axis rather than transverse to it, as claim 29 requires.

Claim 30: The Applicant maintains, similarly to Applicant’s reasoning regarding claim 29, that there is no disclosure in the cited references of any second drive arrangement that serves to advance the medium-emitting device and the partially completed container simultaneously in a direction transverse to an axis of the partially completed container while the device emits the medium.

For these reasons, the Applicant maintains that claims 29 and 30 are patentable over the cited references.

With regard to each of the rejections that the Office Action sets forth under 35 U.S.C. §103(a), the Applicant further maintains that the Office Action doesn’t present a *prima facie* case for obviousness supporting any of these rejections. Instead, the Office Action only identifies advantages that the suggested combinations of references would share with the invention. For example, claims 1, 13, and 20 are rejected because it would ostensibly have been obvious to modify the method and apparatus of the Koder reference to include a movable device . . . as taught by Tuckner “***in order to sterilize the interior of the cartons***” (Paragraph 7); and claims 2, 3, 7, 8, 14, 16, and 21 are rejected because it would ostensibly have been obvious to modify the method and apparatus of Koder by including a carton displacement means as taught by Swain “***in order to assure that the entire carton is treated***” (Paragraph 8). This “shared advantage” reasoning falls short of the required analysis because it fails to differentiate between obvious and non-obvious combinations. It fails to so differentiate because any combination that reaches a given invention will *always* and *necessarily* provide the same advantages as that invention. To conclude that an invention is obvious because a combination of prior art references that produces the same invention would provide the same advantages, is no different from defining an obvious invention as being one that provides the same advantages as itself.

To distinguish between obvious and non-obvious combinations one must instead produce evidence of a teaching or suggestion that would have motivated one skilled in the art to combine those particular references in such a way as to *realize* the advantage. Evidence of motivation to combine may come in the form of an express teaching or suggestion in the prior art or in knowledge generally available to one of ordinary skill in the art. *See, e.g., In re Oetiker*, 24 USPQ2d 1443, 1446-1447 (Fed. Cir.

1992). Evidence of motivation may also be found in “the nature of the problem to be solved, leading inventors to look to references relating to possible solutions to that problem.” *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.* 37 USPQ2d 1626, 1630 (Fed. Cir. 1996); *See also, e.g., In re Rinehart*, 189 USPQ 143, 149 (CCPA 1976); *In re Rouffet* at 1458; *Para-Ordinance Mfg. v. SGS Imports Intern., Inc.* 37 USPQ2d 1237, 1240 (Fed. Cir. 1995); *In re Oetiker* at 1446-1447.

If an examiner is unable to find evidence of motivation in an express teaching or suggestion in the prior art or knowledge generally available to one of ordinary skill in the art, the examiner can still show an implicit motivation to combine with evidence that one skilled in the art, confronted with the same problem as the inventor, would know to use a prior art teaching to solve that problem, i.e., the problem that the Applicant sought to solve through the invention in question. *Id.* For this to be the case, the problem that the invention solves must be the same as or at least similar to the problem that the prior art teaching solves. *In re Rinehart* at 149; *Para-Ordinance* at 1240; *Motorola, Inc. v. Interdigital Technology Corp.*, 43 USPQ2d 1481, 1489 (Fed. Cir. 1997) (“the record evidence supports the jury’s implicit finding of a suggestion to combine the various references . . . [which] were related and involved similar problems and issues.”); *In re Zurko*, 59 USPQ2d 1693 (Fed. Cir. 2001) (“to say that the missing step comes from the nature of the problem to be solved begs the question because the Board has failed to show that this problem had been previously identified anywhere in the prior art.”). The rationale behind this test is that, unless the problem that the inventor solved by including the features in question in his invention is the same as or at least similar to the problem that the prior art solved through the use of those same features, there’s no reason to expect that one of ordinary skill in the art would associate the prior art features with the solution to the inventor’s problem.

Accordingly, the Applicant asks that the Examiner either withdraw these obviousness rejections or present a *prima facie* case for obviousness for each group of claims rejected under §103 and provide the applicant an additional opportunity to evaluate and respond to the Examiner’s reasoning.

In paragraph 15 the Office Action states that Sizer et al. teaches simultaneous application of UV light and sterilant. The Applicant respectfully disagrees. It’s clear from the passage extending from line 23 onwards of column 9 of Sizer et al. that a means 41 for applying a sterilant, such as hydrogen peroxide, ozone or peracid is sprayed into the cartons 80. Then, the ultraviolet lamp 20 is placed within the interior of the carton 80 through the open top 82. Thus, the sterilant is applied before the UV light and not simultaneously with the UV light.

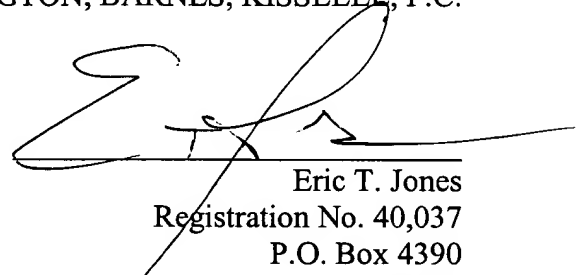
Claims 1-47 recite patentable subject matter and are allowable. Therefore, the Applicant respectfully submits that the application is now in condition for allowance and respectfully solicits such allowance. Please favorably reconsider the outstanding Office Action.

August 22, 2005

I authorize the Assistant Commissioner to charge any deficiencies, or credit any overpayment associated with this communication to Deposit Account No. 50-0852. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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Date: August 22, 2005